WHAT IS CLAIMED IS:

1. A method of aiding in a renal cell carcinoma prognosis, the method comprising:

(a) quantifying expressed carbonic anhydrase IX (CAIX), if any, present in one or more samples derived from a subject diagnosed with renal cell carcinoma to produce quantified CAIX expression data; and,

(b) correlating the quantified CAIX expression data with a probability of a renal cell carcinoma prognosis for the subject.

2. The method of claim 1, wherein the renal cell carcinoma comprises renal clear cell carcinoma.

3. The method of claim 1, wherein the expressed CAIX comprises a CAIX polypeptide or a fragment of a CAIX polypeptide.

4. The method of claim 1, wherein the expressed CAIX comprises an mRNA that encodes a CAIX polypeptide.

5. The method of claim 1, wherein the expressed CAIX are quantified by immunohistochemical staining.

6. The method of claim 1, wherein the samples are derived from a renal tumor and/or a metastatic lesion derived from a renal tumor.

7. The method of claim 1, wherein the quantified CAIX expression data comprises a quantification percentage of more than 85%, which quantification percentage correlates with a better prognosis for the subject than a quantification percentage of 85% or less when the subject is diagnosed with metastatic renal cell carcinoma.

8. The method of claim 1, wherein the quantified CAIX expression data comprises a quantification percentage of 85% or less, which quantification percentage correlates with a better prognosis for the subject than a quantification

percentage of 85% or less when the subject is diagnosed with non-metastatic renal cell carcinoma of T stage ≥ 3 and Fuhrman grade ≥ 2.

**9.** The method of claim 1, wherein the quantified CAIX expression data comprises a quantification percentage of more than 85%, which quantification percentage further correlates with a likely positive response to interleukin-2 immunotherapy for the subject.

**10.** The method of claim 1, wherein the quantified CAIX expression data comprises a quantification percentage of more than 85%, which quantification percentage further correlates with a likely positive response to one or more CAIX-targeted therapies for the subject.

**11.** The method of claim 1, wherein the quantified CAIX expression data comprises a quantification percentage of 85% or less, which quantification percentage further correlates with a likely positive response to an adjuvant immunotherapy for the subject when the subject is diagnosed with non-metastatic renal cell carcinoma of T stage ≥ 3 and Fuhrman grade ≥ 2.

**12.** The method of claim 1, wherein the quantified CAIX expression data are in a computer-readable form.

**13.** The method of claim 12, wherein (b) comprises operating a programmable computer that comprises at least one database and executing an algorithm that determines closeness-of-fit between the computer-readable quantified CAIX expression data and database entries, which entries correspond to clinical and/or pathological data for a population of renal cell carcinoma patients to thereby correlate the quantified CAIX expression data with the probability of the renal cell carcinoma prognosis for the subject.

**14.** A method of aiding in a renal clear cell carcinoma prognosis, the method comprising:

(a) quantifying expressed CAIX polypeptides, if any, present in one or more samples derived from a subject diagnosed with renal clear cell carcinoma to produce

quantified CAIX polypeptide expression data, wherein the samples are derived from a renal tumor and/or a metastatic lesion derived from a renal tumor; and,

(b) correlating the quantified CAIX polypeptide expression data with a probability of a renal clear cell carcinoma prognosis, wherein a quantification percentage of 85% stratifies the prognosis for the subject.

**15.** The method of claim 14, wherein the expressed CAIX polypeptides are quantified by immunohistochemical staining and the quantification percentage comprises a positive staining percentage.

**16.** The method of claim 14, wherein a quantification percentage of more than 85% correlates with a better prognosis for the subject than a quantification percentage of 85% or less when the subject is diagnosed with metastatic renal clear cell carcinoma.

**17.** The method of claim 14, wherein a quantification percentage of more than 85% correlates with a better prognosis for the subject than a quantification percentage of 85% or less when the subject is diagnosed with non-metastatic renal clear cell carcinoma of T stage $\geq 3$ and Fuhrman grade $\geq 2$.

**18.** The method of claim 14, wherein a quantification percentage of more than 85% for a sample derived from the renal tumor correlates with a lower probability of metastasis than a quantification percentage of 85% or less for the sample derived from the renal tumor.

**19.** The method of claim 14, wherein a quantification percentage of more than 85% further correlates with a likely positive response to interleukin-2 immunotherapy for the subject.

**20.** The method of claim 14, wherein a quantification percentage of more than 85% further correlates with a likely positive response to one or more CAIX-targeted therapies for the subject.

**21.** The method of claim 14, wherein a quantification percentage of 85% or less further correlates with a likely positive response to an adjuvant

immunotherapy for the subject when the subject is diagnosed with non-metastatic renal cell carcinoma of T stage ≥ 3 and Fuhrman grade ≥ 2.

**22.** The method of claim 14, wherein the quantified CAIX expression data are in a computer-readable form.

**23.** The method of claim 22, wherein (b) comprises operating a programmable computer that comprises at least one database and executing an algorithm that determines closeness-of-fit between the computer-readable quantified CAIX expression data and database entries, which entries correspond to clinical and/or pathological data for a population of renal clear cell carcinoma patients to thereby correlate the quantified CAIX expression data with the probability of the renal clear cell carcinoma prognosis for the subject.

**24.** A computer program product comprising a computer readable medium having one or more logic instructions for:

(a) receiving quantified CAIX expression data derived from a subject diagnosed with renal cell carcinoma; and,

(b) determining closeness-of-fit between the quantified CAIX expression data and database entries, which entries correspond to clinical and/or pathological data for a population of renal cell carcinoma patients to thereby correlate the quantified CAIX expression data with a probability of a renal cell carcinoma prognosis for the subject.

**25.** The computer program product of claim 24, wherein the computer readable medium comprises one or more of: a CD-ROM, a floppy disk, a tape, a flash memory device or component, a system memory device or component, a hard drive, or a data signal embodied in a carrier wave.